URBANIZATION AND ENVIRONMENTAL SUSTAINABILITY IN LAGOS STATE, NIGERIA

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Abstract

Urbanization has led to an increased population that supersedes the available urban resources and thus, threatened environmental stability in Nigeria. In view of this, this study investigated the impact of urbanization on environmental sustainability in Nigeria. The study anchored on the urban bias theory of Michael Lipton because it explains factors that propel urbanization and creates a relationship between urbanization and environmental sustainability. The study adopted a descriptive research design. A sample size of 754 was derived for this study and respondents were selected using simple random sampling technique. Data was collected through secondary and primary sources and analyzed using descriptive and inferential statistics. The study revealed that the challenges facing environmental sustainability in the face of urbanization in Nigeria are; the lack of access to electricity and the use of fossil fuels, overpopulation, waste management, the development of cities without a comprehensive urban plan and enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise. It was therefore recommended that, urban dwellers identify other ways of disposing waste like; burying. Also, those who have been employed to dispose waste should be more effective in their job. The government on the other hand, should provide all that is needed for proper waste disposal and increase the remunerations of these workers so as to improve work morale.

Key words: environment, environmental sustainability, pollution, urbanization

Introduction

The growth of cities in Nigeria has made it necessary to allocate lands which were ordinarily used for agricultural activities to commercial and residential uses. It has also, increased the rate of pollution due to increase population growth and has necessitated the bringing down of trees and plants and the increase use of mechanical products like; cars, generators etc. in an effort to provide for urban needs like; housing, power supply etc. United Nations (2019) defined urbanization as the mass movement of people from rural to urban areas and the consequential physical changes. It can as well be likened to the growth and expansion of

cities into suburbs and rural areas. According to the United Nations (2014), this process entails the shift from an agrarian economy to industrial and service activities and a change in the economic, social and cultural life of the society (Hatt & Reiss, 1961).

Hatt & Reiss (1961) asserts that urbanization could be in terms of population, lifestyle and process. It could as well be conceptualized into; behavioral, the structural and the demographic categories (Lampard, 1966). According to Lampard (1966), the behavioral concept has to do with the adjustment to behavior or thought, which are said to be urban; the structural concept focuses on the patterned activities of whole populations while the demographic concept focuses on the population concentration. Davis (1965) asserts that this involves a shift from agricultural to industrial employment and urban living (Anderson, 1959).

The United Nations estimated that more than half the world's population (4.2 billion people) live in urban area as at 2019 and by 2041, this figure will increase to 6 billion people (United Nations, 2019) with Sub-Sahara Africa being the fastest urbanizing region in the world (World Bank 2017). According to the World Bank (2017), sub-Saharan Africa experience 4% urban growth compared to 2.0% of global urban growth. In a similar report, the Department of Economic and Social Affairs of the United Nations stated that, the urban population has increased globally and will likely increase to 6700 million by 2050 (United Nations 2019) and is projected to grow from 8.7% in 1990 to 22.3% by 2050 (Saghir and Santoro 2018).

Due to the rapid population growth that precedes urbanization; urban centres have suffered severe socio-economic consequences as a result of the environmental degradation (Salahuddin et al. 2019) that has accompanied urbanization. Maurya et al. (2020) stated that, industrialization, urbanization, population growth, deforestation, inadequate infrastructure and institutional capacity (Douglas et al. 2008; Diagne 2007; Brown et al. 2014) all contribute largely to environmental degradation in Sub-Saharan Africa. Basupi et al. (2017), Anser et al. (2021) Adedoyin et al. (2021) and Dash et al. (2022) further added that, economic policy uncertainty, energy poverty and poor and ineffective implementation of environmental reforms, the enormous strain on natural resources caused by floods, typhoons, droughts and rising temperatures has also taken a negative toll on the environment (Fenta et al. 2020; Adedoyin et al. 2021).

However, while environmental degradation seems to be unavoidable in the face of urbanization, Nigeria seems not to have taken into cognizance the need to sustain the environment in urban centers. This can be referred to as the ability to maintain a healthy environment that satisfies the needs of the urban population; without constituting environmental threat to present and future generation. Sutton (2004) defined environmental sustainability as the ability to maintain quality physical environment (ecosystem) like; water cycle, climate, soil, urban environments and ecological communities. This can best be measured by the rate of natural resource depletion and whether the current rate at which resource use can be sustained into the distant future or renewed (Goldemberg, 2000).

Several studies have examined the impact of urbanization on environmental degradation however, this study sought to investigate the extent to which urbanization has affected environmental sustainability and the challenges of environmental sustainability in Nigeria. Therefore, the study aimed at examining the effect of urbanization on environmental sustainability and exploring the challenges of environmental sustainability in Nigeria.

Statement of problem

Urbanization has numerous prospects for social and economic development which could vary from good job and economic opportunities, improved social amenities like healthcare services to improved social status. While urbanization should be encouraged as a result of these prospects, most cities in Nigeria may not have been properly planned or built in accordance with the city plan. This has so far led to over urbanization; where the existing urban population become larger than the available resources like; housing, social amenities etc. in urban areas. As a result, many slums, shanties and housing structures have sprang up in places allocated for roads, drainage etc. thereby, leading to flood, erosion etc.

More worrisome is the indiscriminate disposable of refuse, the act of open defecation and deforestation that tend to accompany such housing structures and has made urban centers the hive for pollution and unhealthiness. This also is accompanied by the use of numerous machines like generator, cars etc. which emits dangerous gaseous elements into the atmosphere thereby; intensifying the problem of global warming and its associate climate change and increased temperature. Even as these problems persists and threatens human existence, conscious efforts may not have been put in place to ameliorate the burden on the ecosystem.

Basically, these factors continue to come together to constitute threat to the ecosystem and increase the rate of mortality through illness and diseases as priority is yet to be given to these problems as they affect the ecosystem; in policy and action especially as individuals continue to shy away from simple measures like; tree planting of trees and the use of solar energy that reduces the emission of dangerous gaseous elements into the atmosphere. Thus, efforts and resources are not purged into the sustenance of urban environment. Also, the trend of rural-urban bias in the country seems to have received little attention and have overtime, continued to be perpetuated thereby, heighten the problem of over urbanization in the country.

Research questions

1. What are the impacts of urbanization on environmental sustainability in Nigeria?
2. What are the challenges of environmental sustainability in the face of urbanization in Nigeria?
3. How best can the challenges facing environmental sustainability be curbed and possibly eradicated in Nigeria?

Literature review

An overview of Urbanization

Urbanization is the process by which, an area become urban. It also, the movement of people to urban areas thereby, leading to increase population and urban areas (Mitchell, 1956). Thompson (1935) asserts that it is the movement of people from small agrarian communities to larger communities that are primarily centred on government, trade, manufacture or allied activities. According to Anderson (1960) this involves a shift from countryside to city and from land bound work to urban type of work with its related change in status, lifestyle, attitude and behaviour (NLM, 2014). Hauser and Duncan (1959) explained that, this involves a change in the pattern and size of urban population.

The Economist (2012) have predicted that by 2050 about 64% of Africa and Asia and 86% of the developed world will be urbanized and that, nearly all global population growth from 2017 to 2030 will be absorbed by cities creating, about 1.1 billion new urbanites over the next 13 years (Barney, 2015) as more than half of the world's population currently, lives in cities (United Nations, 2019).

This has led to widespread conversion of vegetated lands to dense surfaces as well as atmospheric and climatic changes like; urban heat effect, increased CO2 concentrations and air pollution in urban areas (IPCC, Climate Change, 2014; Grimm, 2008). This propelled Grimm (2008) and Ziska (2003) to assert that, urban areas are the future global change (Grimm 2008; Ziska 2003) due to their effects on vegetation growth (Calfapietra et al., 2015; Youngsteadt, et al., 2015).

According to Sandel and Svenning (2013) and Liu (2019) this effect could be direct or indirect. The direct effect is negative and refers to the shift of land coverage from natural surfaces to dense ones with reduced vegetation coverage and growth while the indirect urbanization effect is as a result of human management practices in cities and higher air temperature compared to surrounding natural areas (Wang & Dong 2019).

Rural-urban migration and urban expansion has been found to be the leading causes of urbanization and has led to urban sprawl and its consequential environmental degradation, culminating in high carbon footprint, loss of open space and destruction of ecologically sensitive habitats (McKinsey, 2010; HPEC, 2011). According to Kumar et al. (2017), this has also, increased the rate of pollution, slum and squatter settlements, led to climate change Tangri (2003), Nagendra et al., (2012; 2013), Mukhopadhyay and Revi (2009), Chopra (2016), UN-HABITAT (2017), created water and sewage problems Mwangi, 2003), solid waste and trash disposal problems and change in land use (Chawla, 2012), (Gupta, 2014).

Obviously, the implications of urbanization on the environment are enormous yet; cities in Nigeria have continued to grow and will continue to grow thereby, making Nigeria susceptible to worst consequences.

Estimates of population growth rates, urbanization rates and urban population growth rates (all in % per annum) by region for decades between 1950–2050

	1950–1960	1960–1970	1970–1980	1980–1990	1990–2000	2000–2010	2010–2020	2020–2030	2030–2040	2040–2050
Population growth rates										
World	1.8	2.0	1.9	1.8	1.4	1.2	1.1	0.9	0.7	0.6
Sub-Saharan Africa	2.1	2.5	2.8	2.8	2.7	2.7	2.6	2.4	2.2	2.0
Northern Africa	2.7	2.7	2.5	2.6	1.9	1.7	1.6	1.3	1.0	0.8
Asia	2.0	2.3	2.2	2.0	1.5	1.1	1.0	0.6	0.4	0.2
Europe	1.0	0.8	0.6	0.4	0.1	0.2	0.0	–0.1	–0.2	-0.2
Latin America and the Caribbean	2.8	2.7	2.4	2.0	1.7	1.3	1.0	0.8	0.5	0.3
Northern America	1.8	1.3	1.0	1.0	1.1	0.9	0.8	0.7	0.6	0.5
Oceania	2.2	2.2	1.6	1.6	1.5	1.6	1.4	1.2	1.0	0.9

Urbanization rates	1950–1960	1960–1970	1970–1980	1980–1990	1990–2000	2000–2010	2010–2020	2020–2030	2030–2040	2040–2050
World	1.3	0.8	0.7	0.9	0.8	1.0	0.9	0.7	0.5	0.5
Sub-Saharan Africa	3.3	2.1	2.1	1.9	1.3	1.4	1.3	1.2	1.0	0.9
Northern Africa	2.0	1.6	1.1	1.0	0.6	0.4	0.5	0.5	0.6	0.6
Asia	1.9	1.2	1.4	1.7	1.5	1.8	1.4	1.0	0.7	0.6
Europe	1.0	1.0	0.7	0.4	0.1	0.2	0.3	0.3	0.3	0.3
Latin America and the Caribbean	1.8	1.5	1.2	0.9	0.7	0.4	0.3	0.2	0.2	0.2
Northern America	0.9	0.5	0.0	0.2	0.5	0.2	0.2	0.2	0.2	0.2
Oceania	0.7	0.6	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.2

Urban population growth rates	1950–1960	1960–1970	1970–1980	1980–1990	1990–2000	2000–2010	2010–2020	2020–2030	2030–2040	2040–2050
World	3.2	2.8	2.6	2.7	2.3	2.3	2.0	1.5	1.2	1.0
Sub-Saharan Africa	5.5	4.6	4.9	4.8	4.0	4.1	4.0	3.6	3.2	2.9
Northern Africa	4.7	4.4	3.6	3.6	2.5	2.1	2.1	1.8	1.6	1.4
Asia	3.9	3.5	3.5	3.8	3.0	3.0	2.3	1.6	1.1	0.8
Europe	2.0	1.8	1.2	0.8	0.2	0.4	0.3	0.2	0.2	0.1
Latin America and the Caribbean	4.6	4.2	3.6	3.0	2.4	1.7	1.4	1.1	0.7	0.5
Northern America	2.7	1.8	1.0	1.2	1.6	1.2	1.0	0.9	0.8	0.6
Oceania	3.0	2.9	1.6	1.5	1.5	1.6	1.4	1.2	1.1	1.0

Source of population and urbanization statistics: United Nations Population Division (2014). The figures are compound annual growth rates.

Urbanization levels (percent urban) 1950–2050 by geographical region

Geographical area	1950	1970	1990	2010	2030	2050
World	30	37	43	52	60	66
Sub-Saharan Africa	11	18	27	35	45	55
Northern Africa	26	37	46	50	56	63
Asia	18	24	32	45	56	64
China	12	17	26	49	69	76
India	17	20	26	31	39	50
Europe	52	63	70	73	77	82
Latin America and the Caribbean	41	57	71	78	83	86
Northern America	64	74	75	81	84	87
Oceania	62	71	71	71	71	74

Source of statistics: United Nations Population Division (2014)

Meaning of environmental sustainability

Environmental sustainability has to do with a situation where human rate of consumption does not exceed the natural rate of replenishment and when human rate of generating pollution and emitting greenhouse gases does not exceed the natural rate of restoration. Dong (2015) divided environmental sustainability into two categories; proactive and passive environmental sustainability. According to Dong (2015) proactive environmental sustainability refers to proactive measures that are put in place to satisfy transcendent needs. In this case, consumption is voluntarily minimised to reduce the impact on the environment. On the other hand, passively environmental sustainability refers to a situation where members of a society reduce consumption because of their inability to afford the means and resources to consume thereby, reducing the environmental impact. Nevertheless, this impact tends to more when individuals are trying to satisfy their physiological needs like; food, shelter, clothing etc. (Greendex, 2010).

Therefore, environmental sustainability entails the voluntary participation of every member of the society and aims at reducing the negative impact of human activities on the environment even as these activities are not discontinued.

Erich (2019) and Pawel (2021) highlighted that the challenges of environmental sustainability are;

1. **Global Warming and Climate Change:** which is as a result of the increased emission of carbon dioxide (CO2) and other greenhouse gases which has also, increased the global temperatures, extreme weather events, rising sea levels etc., increase the rate of pollution through excessive deforestation, industrialization and overfilling landfills which emits CO2 and adds to greenhouse gas emissions.

2. **Water Pollution and Ocean Acidification:** rapid urban development, improper sewage disposal by industries, oil spills, disposal of chemical and radioactive wastes, and plastic pollution are threat to environmental sustainability.

3. **Loss of Biodiversity:** habitat destruction, climate change, pollution, secondary extinction and introduced species makes it impossible to balance of the ecosystem and provides biological resources which are necessary for human existence.

In addition to this, Pawel (2021) stated that the challenges of environmental sustainability are;

1. **Slow energy transition and insufficient share of renewable energy:** this problem emanates from the lack access to electricity and the use of fossil fuels.

2. **Uncompromising food production harms:** this emanates from the overexploitation of natural resources and disturbance of the environment that depletes the soil and damages the marine ecosystems.

3. **Development of cities without a comprehensive urban strategy.**

4. **Overpopulation and waste management:** the amount of waste generated impact on health and the environment negatively.

Urbanization and environmental sustainability

According to United Nations data (2022), 47 percent of the urban population in Sub-Saharan Africa currently lives in slums and often times struggle with inadequate infrastructure and poor living condition. According to them, most of this population lives in informal settlements that are worsened by climate change and related rising sea levels, flooding, landslides, heat stress, water scarcity, and other threats. This is worsened by the wrong urbanization and unsustainable urban policies which tend to reduce the quality of urban life.

World Health Organization (WHO) (2022) asserts that air pollution is one of the biggest problems facing urban population especially, in low and middle income countries and in cities with more than 100,000 people reside. This has also caused millions of premature deaths, from stroke, heart disease, chronic obstructive pulmonary disease, lung cancer, and acute respiratory infections. According to WHO, household combustion appliances, motor vehicles, industrial plants and forest fires are common sources of this pollution as they emit dangerous gaseous elements like; carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide etc. that constitute threat to residents of urban population.

Yushanjiang et al., (2021) asserts that the combination of evolving ecosystem types and growing social demands has caused changes in the supply-demand relationships of cultivated

land and a swift transformation of various agricultural landscapes (Wood et al., 2018). This poses threats to the structures and functions of cultivated land and has comprehensively reduced the supply capacity of land for food production. On the other hand, the increase and agglomeration in various socioeconomic factors (e.g., population size, resident income level) has also brought about the increase social demands for cultivated land (Zhang, Hu, et al., 2021).

Therefore, urbanization processes has not only affected food production as most arable lands are taken by urban developments. It has also affected the explicit structures (e.g., quantity structure, spatial pattern) and implicit functions (e.g., utilization quality, spatial function) of cultivated land systems (Castillo-Eguskitza et al., 2018) thereby, limiting the supply of various service functions (Chen et al., 2019). However, through the impact on social system compositions (e.g., resident behavior, demographic migration, socioeconomic condition), urbanization processes significantly improve the functional demands of human beings for cultivated land systems (Villamagna et al., 2013).

In view of this, urbanization does not just affect the environment and the ecosystem. But, it also affect food production even when food production remains one of the basic necessities in urbanization.

Theoretical framework

This study anchored on the urban bias theory of Michael Lipton because it explained the pull factors that propels urbanization and creates a relationship between urbanization and environmental sustainability. The theory argued that government policies favour urban centres at the expense of rural area; where majority of the population reside (Nikhil, 2023). This theory has been faulted for not taken into cognizance social changes that could cause rural development but, its prospects remains a justification for its adoption.

Based on this theory, the government focused its developmental policies and programs on urban area with little or no attention on the rural sector. This has led to the deprivation and underdevelopment of rural areas; which is at variance with the development in urban areas. This exposes urban areas to numerous socio-economic opportunities that are not in rural areas and has served as pull factors thereby, leading to rural-urban migration. By implication, this has continued to increase the population growth in urban areas and has thus, caused over

urbanization; a situation where the available resources are not enough to satisfy the needs of the urban population.

By implication, urban areas have been faced with numerous problems like environmental degradation like pollution, global warming etc. and shortage of food supply due to the conversion of arable lands to non-agricultural uses. All of these take a negative toll on the health and general living condition of urban dwellers in the country and may have as well reduced the life expectancy in urban areas.

Research methodology

This study focused on the impact of urbanization on environmental sustainability in Lagos, Nigeria. The city has a very high population density that outweighs the available resources in the city and tends to suffer worst implications of urbanization on the environment. This urban population is attracted by the numerous social and economic opportunities which the city offers but are absent in rural areas. Therefore, this study adopted a descriptive research design because it enabled the researcher to gather data on the behavior, opinions and events in the research setting.

Worldpopulationreview (2023) projected Lagos population as 15, 945, 912 as at 2023. Therefore, the researcher used a sample calculator of 99% confidence level, margin of error of 2, population proportion of 5, and a population size of 15, 945, 912 to derive a sample population of 791. The researcher further identified the local government areas in Lagos state as 20. But, the local government areas experiencing urbanization the most in terms of increased population growth are; Ajeromi-Ifelodun, Kosofe, Alimosho, Mushin, Oshodi-Isolo and Ojo. Thus, these local government areas were selected for this study and 132 questionnaire were distributed in these areas to ensure equity.

Respondents were selected using a simple random sampling technique. The research data was derived through the use of a research structured questionnaire and analyzed using descriptive and inferential statistics.

Research findings

Table 1: distribution of research questionnaire

S/N	Local government areas	Numbers of questionnaire distributed	Numbers of questionnaire returned	Percentage
1.	Ajeromi-Ifelodun	132	127	16.8%
2.	Kosofe	132	124	16.4%
3.	Alimosho	132	129	17.1%
4.	Mushin	132	127	16.8%
5.	Oshodi-Isolo	132	125	16.6%
6.	Ojo	132	122	16.2%
Total		792	754	100%

Source: fieldwork, 2023.

The table above showed that the sample size of this study was 754. It revealed that the highest response was derived from Alimosho LGA while the least response was derived from Ojo LGA.

Table two: the impacts of urbanization on environmental sustainability in Nigeria

S/N	Questions	Yes	No	Don't know	Total (%)
1.	Urbanization has caused overpopulation in cities.	707 (93.8%)	47 (6.2%)	-	754 (100%)
2.	Urbanization has caused pollution	696 (93.3%)	51 (6.8%)	07 (0.9%)	754 (100%)
3.	Urbanization has caused global warming	423 (56.1%)	308 (40.8%)	23 (3.1%)	754 (100%)
4.	Urbanization leads to the conversion of agricultural lands to non-agricultural use	680 (90.2%)	69 (9.2%)	05 (0.7%)	754 (100%)
5.	Urbanization has made the population in urban areas to grow beyond the resources in urban areas	642 (85.1%)	101 (13.4%)	11 (1.5%)	754 (100%)

Source: fieldwork, 2023.

The table above showed that the impacts of urbanization on environmental sustainability are overpopulation, pollution, global warming, the use of lands for non-agricultural purpose, and population growth that exceeds the available urban resources. But, the most pronounce of these impacts are; overpopulation, pollution and the conversion of agricultural lands.

Table 3: challenges facing environmental sustainability in the face of urbanization in Nigeria

S/N	Questions	Yes	No	Don't know	Total

6.	Urban dwellers lack access to electricity and the use of fossil fuels.	523 (69.4%)	222 (29.4%)	09 (1.2%)	754 (100%)
7.	Overpopulation	603 (80%)	151 (20%)	-	754 (100%)
8.	Waste management	594 (78.8%)	160 (21.2%)	-	754 (100%)
9.	Development of cities without a comprehensive urban plan	454 (60.2%)	295 (39.1%)	05 (0.7%)	754 (100%)
10.	Enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise	612 (81.2%)	142 (18.8%)	-	754 (100%)

Source: fieldwork, 2023.

Deduced from the above, the challenges facing environmental sustainability in the face of urbanization in Nigeria are; the lack access to electricity and the use of fossil fuels, overpopulation, waste management, the development of cities without a comprehensive urban plan and enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise. Of all these challenges the most prominent are; overpopulation, waste management and the enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise.

Table 4: how the challenges facing environmental sustainability can be curbed and possibly eradicated in Nigeria

S/N	**Questions**	**Yes**	**No**	**Don't know**	**Total**
11.	Stable power supply	387 (51.3%)	361 (47.9%)	6 (0.8%)	754 (100%)
12.	Tree planting	391 (51.9%)	354 (46.9%)	09 (1.2%)	754 (100%)
13.	Development of rural area	383 (50. 8%)	371 (49.2%)	-	754 (100%)
14.	Proper waste management	596 (79%)	158 (21%)	-	754 (100%)
15.	Development of cities with a comprehensive urban plan and sticking to it	377 (50%)	366 (48.5%)	11 (1.5%)	754 (100%)
16.	Enactment and enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise	501 (66.4%)	253 (33.6%)	-	754 (100%)

Source: fieldwork, 2023.

The above table shows that, tree planting, development of rural areas, development and adherence to a comprehensive city plan, stable power supply and most importantly, proper waste management and the enactment and enforcement of laws that ensures environmental

sustainability like the monthly clean-up exercise are measures that ensures environmental sustainability in the face of urbanization.

Discussion of findings

Urbanization was revealed to have caused overpopulation, pollution, over urbanization and the conversion of agricultural lands into non-agricultural uses; all of which affects environmental sustainability negatively. These implications are as a result of the growth in population which urbanization triggers which have increased the rate of social and economic activities thereby, increasing the rate of pollution. It also, increases urban needs especially; the housing need in the city. In a bid to satisfy this need, lands which were originally meant for agricultural uses were converted to non-agricultural uses like; housing.

This is in line with the assertion of Wang & Dong (2019) which stated that urbanization has led to the shift of land coverage from natural surfaces to dense ones with reduced vegetation coverage and growth. This has therefore affected food production in urban areas and has also, led the over dependence on rural areas for food production.

In line with Kumar et al. (2017), urbanization has increased the rate of pollution, slum and squatter settlements, led to climate change Tangri (2003), Nagendra et al., (2012; 2013), Mukhopadhyay and Revi (2009), Chopra (2016), UN-Habitat (2017), created water and sewerage problems Mwangi, (2003), solid waste and trash disposal problems and change in land use (Chawla, 2012), (Gupta, 2014) McKinsey, 2010; HPEC, 2011), has led to urban sprawl and its consequential environmental degradation, culminating in high carbon footprint, loss of open space and destruction of ecologically sensitive habitats (McKinsey, 2010; HPEC, 2011), the study further revealed that the challenges of environmental sustainability in the face of urbanization in Nigeria are; overpopulation, waste management. It was further reviewed that, the lack of urban plan, unstable power supply and the enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise are challenges of environmental sustainability in the face of urbanization in Nigeria. The problem of power supply has increased the rate at which urban dwellers use generators. This in collaboration with other machines and vehicles which are used in the city contribute to the problem of global warming which have increased the temperature in cities, led to climatic changes like; urban heat effect, increased CO2 concentrations and air pollution in urban areas according to IPCC, Climate Change, (2014) and Grimm (2008) and has made cities unhealthy.

Therefore, it was revealed that to ensure environmental sustainability in the face of urbanization, there is need to plant trees and ensure stable power supply so as to reduce the need for generator and impact of gaseous elements in the atmosphere. Also, the rural-urban bias should be eliminated to ensure even development in urban and rural areas and curb rural-urban migration. Furthermore, the enactment and enforcement of laws that ensures environmental sustainability like the monthly clean-up exercise, development of city plan and proper waste management will help to check pollution and ensure environmental sustainability in the face of urbanization.

Conclusion/ recommendation

Urbanization is inevitable as the society continues to evolve. While this has prompted an increased rate in population that supersedes the available resources in urban areas the cross of it all falls on the environment as it continues to struggle to accommodate this population growth and the changes that comes with it. Obviously, as this struggle continues, the challenge on environmental sustainability has remained enormous as the rate of pollution, overpopulation continues to increase. Evidence has shown that there some laws which were enacted to curb these challenges and ensure environmental sustainability. But, in most cases these laws may not have been strictly enforced thereby, making it seem like they are nonexistence thereby, worsening the environmental challenges in urban areas.

Also, cities in Nigeria are devoid of adequate plans especially as it has to do with accommodating the increased growing population. This has increased the rate of illegal housing structures and slums and its associated problems. Therefore, it was recommended that;

1. The government ensures regular power supply in Nigeria.
2. These is need for sensitize urban dwellers on the need to plant tree to alleviate the burden of pollution on the ecosystem. Urban dwellers should also imbibe the culture of tree planting in their environment.
3. There is need to eradicate the rural-urban bias and ensure even development in rural and urban areas so as to curb rural-urban migration.
4. There is need for urban dwellers to identify other ways of disposing waste like; burying. Also, those who have been employed to dispose waste should be more effective on the job. The government on the other hand, should provide all that is

needed to make waste disposal possible and increase the remunerations of these workers so as to improve work morale.

5. Laws that support environmental sustainability like the monthly clean-up exercise should be enactment and strictly enforced so as to ensure environment sustainability in the face of urbanization.

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